IN THE CLAIMS

Please enter Amendments to Claims 8, 14, and 19 and Allow the resulting Claims.

1. - 7. (canceled):

8. (currently amended): A method of ~~tracking-fabrication-of~~ fabricating a sample comprising a sequence of high and low "K" dielectric constant layers of materials which each have thickness on the order of less than 100 Angstroms comprising the steps of:

a) fabricating a reference sample which comprises a sequence of high and low "K" dielectric constant layers;

b) obtaining spectroscopic data therefrom as said reference sample is fabricated;

c) fabricating a second sample which is meant to be the same as the reference sample

d) obtaining spectroscopic data therefrom as said second sample is fabricated and in real time detecting differencs said spectra as compared to the corresponding reference sample spectroscopic data; and

e) modifying fabrication parameters to minimize said differences;

in which the spectroscopic data for each of the two samples is derived from ellipsometric PSI and/or DELTA vs. wavelength, and comprises a difference in at least one selection from the group

consisting of:

$$N = \mathbf{Cos}(2\Psi);$$
$$C = \mathbf{Sin}(2\Psi)\mathbf{Cos}(\Delta);$$
$$S = \mathbf{Sin}(2\Psi)\mathbf{Sin}(\Delta);$$

calculated for each of the two samples;

said procedure resulting in the fabricated second sample being substantially identical to said fabricated reference sample.

9. - 11. (canceled):

12. (previously amended): A method as in Claim 8 in which the layers of a sample which has a sequence of high and low "K" layers present thereupon includes at least one layer[[s]] comprised of at least one selection from the group consisting of:

SiO_2;
SiON;
HfO;
HfO-SiO_2.

13. (original): A method as in Claim 8 in which the electromagnetic radiation comprises wavelengths in at least one selection from the group consisting of:

FIR;
IR;
NIR-VIS-NUV;
UV;
DUV; and

VUV.

14. (currently amended): A method ~~for evaluating~~ of fabricating ~~thickness of~~ an ultrathin film of a determined thickness comprising the steps of:

a) providing a system comprising an optically absorbing substrate with a layer of optically transparent material on a surface thereof which is greater than about 250 Angstroms deep;

b) causing a beam of spectroscopic electromagnetic radiation to impinge on said surface of said optically transparent material at an oblique angle, interact with said system and via a detector determining spectroscopic ellipsometic PSI ( ) and DELTA ( ), and therefrom calculating at least one selection from the group consisting of:

$$N_o = \mathbf{Cos}(2\Psi);$$
$$C_o = \mathbf{Sin}(2\Psi)\mathbf{Cos}(\Delta);$$
$$S_o = \mathbf{Sin}(2\Psi)\mathbf{Sin}(\Delta);$$

c) depositing an ultrathin film of absorbing material on a surface of said layer of optically transparent material to produce a tangible concrete system comprising said optically absorbing substrate with a layer of said optically transparent material on said surface thereof, and again causing a beam of spectroscopic electromagnetic radiation to impinge on said surface of said optically transparent material at an oblique angle, interact with said system and via a detector obtaining spectroscopic ellipsometic PSI ( ) and DELTA ( ), and therefrom calculating at least one selection from the group consisting of:

$$N_f = \mathbf{Cos}(2\Psi);$$

$$C_f = \mathbf{Sin}(2\Psi)\mathbf{Cos}(\Delta);$$
$$S_f = \mathbf{Sin}(2\Psi)\mathbf{Sin}(\Delta);$$

d) over a spectroscopic range of wavelengths determining a parameter vs. wavelength which depends on at least one difference selected from the group consisting of:

$$(N_f - N_o);$$
$$(C_f - C_o); \text{ and}$$
$$(S_f - S_o);$$

e) using peaks in the parameter determined in step d to evaluate thickness of the ultrathin film;

said method resulting in a fabricated tangible concrete system comprising said optically absorbing substrate with a layer of said optically transparent material on said surface thereof, the thickness of said ultrathin film being determined in step e.

15. (previously amended): A method for evaluating thickness of an ultrathin film as in Claim ~~13~~ 14, in which the parameter determined in step d is an RMS value calculated from:

$$\sqrt{\frac{(N_f - N_o)^2 + (C_f - C_o)^2 + (S_f - S_o)}{3}}$$

16. (presently amended): A method for evaluating thickness of an ultrathin film as in Claim ~~13~~ 14, in which the depth of the layer of optically transparent material is 1000 Angstroms or greater.

17. (previously amended): A method for evaluating thickness of an ultrathin film as in Claim ~~13~~ 14, in which the depth of the layer of optically transparent material is 1000 Angstroms or greater and in which the parameter determined in step d is an RMS value calculated from:

$$\sqrt{\frac{(N_f - N_o)^2 + (C_f - C_o)^2 + (S_f - S_o)}{3}}$$

18. (previously amended): A method for evaluating thickness of an ultrathin film as in Claim ~~13~~ 14, ~~in~~ in which optcal constants of the ultrathin film of absorbing material on a surface of said layer of optically transparent material, are also determined.

19. (currently amended): A method of ~~tracking fabrication of~~ fabricating a sample comprising a sequence of high and low "K" dielectric constant layers of materials which each have thickness on the order of less than 100 Angstroms comprising the steps of:

a) fabricating a reference sample which comprises a sequence of high and low "K" dielectric constant layers;

b) obtaining spectroscopic data therefrom as said reference sample is fabricated;

c) fabricating a second sample which is meant to be the same as the reference sample

d) obtaining spectroscopic data therefrom as said second sample

is fabricated and in real time detecting differencs said spectra as compared to the corresponding reference sample spectroscopic data; and

e) modifying fabrication parameters to minimize said differences;

in which the spectroscopic data for each of the two samples is derived from ellipsometric PSI and/or DELTA vs. wavelength, and comprises a difference in an RMS value calculated from:

$$\sqrt{\frac{(N_f - N_o)^2 + (C_f - C_o)^2 + (S_f - S_o)}{3}}$$

where:

$$Nf = \mathbf{Cos}(2\Psi);$$
$$Cf = \mathbf{Sin}(2\Psi)\mathbf{Cos}(\Delta);$$
$$Sf = \mathbf{Sin}(2\Psi)\mathbf{Sin}(\Delta);$$

correspond to one of said samples and:

$$No = \mathbf{Cos}(2\Psi);$$
$$Co = \mathbf{Sin}(2\Psi)\mathbf{Cos}(\Delta);$$
$$So = \mathbf{Sin}(2\Psi)\mathbf{Sin}(\Delta);$$

corresponds to the second sample;

said procedure resulting in the fabricated second sample being substantially identical to said fabricated reference sample.

It is believed that the Claims 8 and 12 - 19 are now Allowable, therefore the Examiner is respectfully requested to provide the Notice of Allowance and Issue Fee due. If problems remain which can be worked out in this Application as opposed to an RCE, please do phone Attorney Welch.

Sincerely,

JAMES D. WELCH

JW/hs